

Regional-Wide Waste Disposal Project on Seacoast of Enclosed Coastal Sea

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The wastes which are discharged from Kinki district amounts to a hundred millions tons a year. Even if the measures must be taken to promote resource recovery from such wastes and to reduce the weight and volume of wastes by intermediate treatment, we must dispose of forty-six millions tons of wastes to the final disposal site.

Our plan is to dispose of the wastes such as general wastes, industrial wastes, soil discharged by construction activities, and dredged sand from the regional area(149 municipalities) to the two of our final disposal sites, off-Amagasaki(113ha) and off-Izumiotstu(203ha) with an eye to prevent environmental pollution.

In the impermeable water controlled area where we dispose of general wastes, sewage sludge, slag, smoke dust and so on, we have driven in steel sheet piles in behind the sea wall down to the clay layer, and we are to discharge the water through the waste water treatment facility in order to prevent water pollution.

The Structure and Water Level Control of Amagasaki Shore Disposal Site (Controlled Area)

The Amagasaki shore disposal site has an impermeable water controlled area(33ha) for the disposal of general wastes and sludge etc, as well as a stabilized, solid fill area(80ha) for the disposal of construction waste and surplus soil. The sea wall structure and the water level control of the controlled area are as follows.

(1) Sea Wall Structure

Considering the water depth and soil conditions of the project site, and construction execution feasibility and economic factors, a caisson type sea wall is being employed. For the construction of the controlled water impermeable area, considering practicability, execution feasibility and economics, it was concluded that steel sheet piling was the best option, with the steel sheeting being driven in behind the sea wall down to the clay layer. A cross section of the sea wall construction is shown in fig.1. The steel sheet piles construction is shown in fig.2.

(2) Water Level Control

Maintaining the inner water level of the site at the average low tide level helps to improve the impermeability effect. In the actual method, the sea wall will be closed to maintain the water level in the site at the average low tide level. During the shore filling operation, the inner water level will always be monitored, and as the water level rises, the inner water will be treated by the water treatment facility and then discharged into the ocean.

FIG.1 SEA WALL CONSTRUCTION

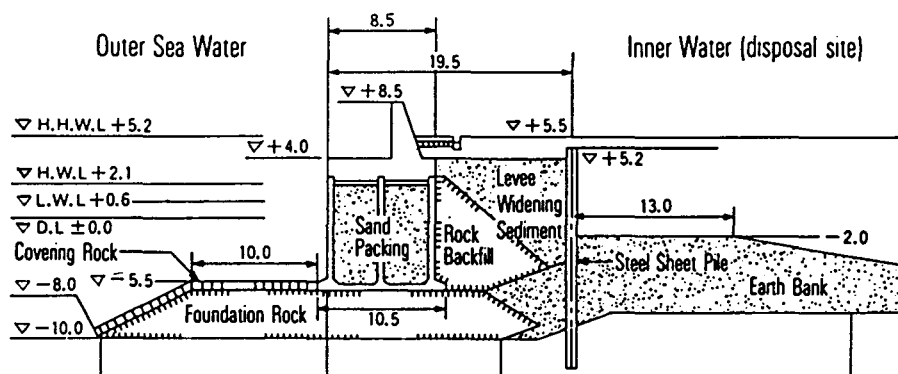
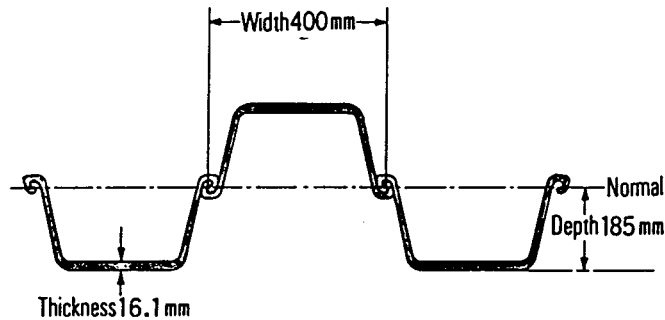


FIG.2 STEEL SHEET PILE CONSTRUCTION



Waste Water Treatment System

As a processed waste disposal site, the shore-fill disposal will be conducted in areas sectioned off by sea walls, etc. The displaced water, created within the site by the shore-fill, will be treated by the waste water treatment facility. In addition, as the filling process continues and sea water has been displaced, the surface water will be collected and treated.

This water treatment system is as follows.

① Pretreating Equipment

After removing the floating debris from the displaced water created by the shore filling within the site by pumping through a screen, pH will be adjusted.

② Biological Treatment Equipment

A contact aeration type organic membrane treatment will be employed. By utilizing the micro-organisms on the surface of the fillers, dissolution of the organic matter in the waste water and removal of the nitrogen constituent can be effectively carried out. This plays the central role in the waste water treatment system.

③ Coagulating Sedimentation Equipment

The polluting substances in the water to be created are removed through the addition of coagulating chemicals and by gravitational precipitation. The slightly acidic coagulation precipitation treatment is especially effective in the removal of COD and SS components. After sterilizing, the treated water is discharged into the ocean.

④ Sludge Treatment Equipment

Sludge generated by the treatment of the waste water is concentrated, and after accumulation, a high molecular coagulant is added and it is then disposed of by burying in the shore-fill area (Controlled area).

The quality of the raw and treated water is indicated in the waste water treatment facility flow sheet in fig.3.

FIG.3 FLOW SHEET

